



M&S Requirements to Support the Quadrennial Defense Review

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Purpose and Scope

Explore Role of Joint Collaborative Analysis (JCA) and Modeling and Simulation in Air Force QDR Preparations

- ➔ Joint Collaborative Analysis Objectives**
- ➔ The Challenges**
- ➔ AF QDR Organization and Processes**
- ➔ Key JCA Enablers**

Joint Collaborative Analysis

(JCA) Objectives:

- ➔ **To systematically bring together Service and Joint analytic communities to elevate the quality of analysis available to decision makers**
- ➔ **To establish a process that draws the players in the “market economy” into the field of view**



Purpose and Scope

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- **The Challenges**
- **AF QDR Organization and Processes**
- **Key JCA Enablers**



The Analytic Nexus



Vision

Different and much better?

Guidance

End-State Costs



Current Program

Effects Based Operations

Desired Effects

Current Modernization

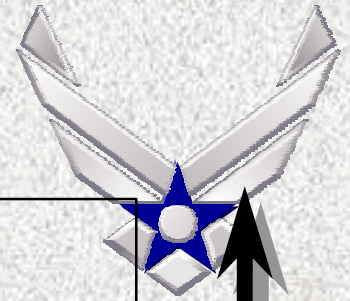
MAP

More of the same, but better?

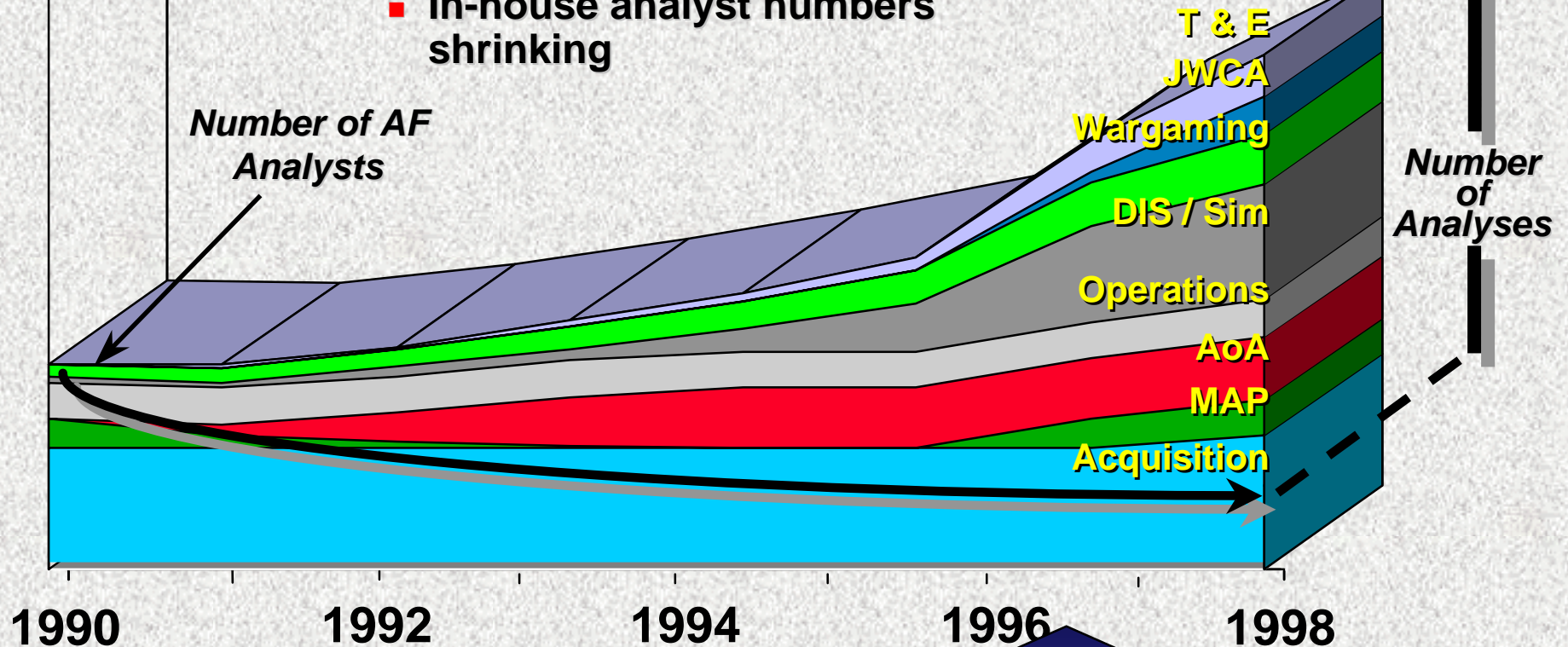
Can Collaborative Analysis Help Illuminate Path Ahead?



Trends for Analyses & Analysts



- Analysis needs growing
- In-house analyst numbers shrinking



Can Collaborative Analysis
Help Relieve the Pressure?



Determining the Questions?



QDR 97

QDR 01

Strategy

Force Structure

Modernization

Infrastructure

Readiness

Info Ops/Intel

Human Resources

- What are the key issues?
- How do the issues interrelate?
- What are the questions the Air Force must answer for each issue?
- What are the analytical tasks to answer each question?
- Who is best capable of conducting each analytical task?
- How are these efforts integrated?
- Etc. ...

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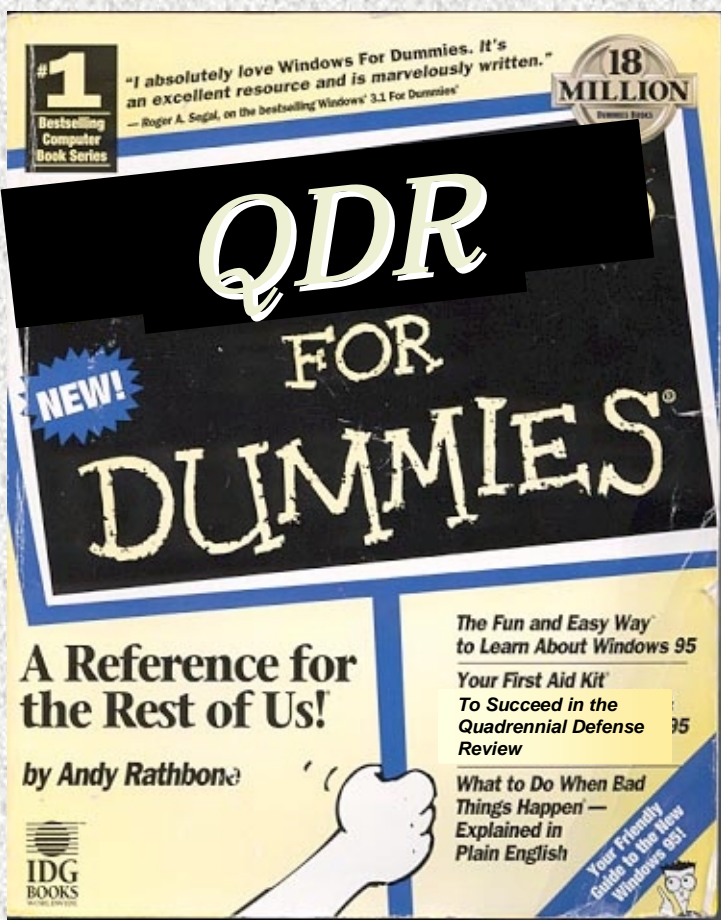
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Challenges in Review: Working on an Answer



**“A Must! I count on it daily”
Col Rich Hanley**

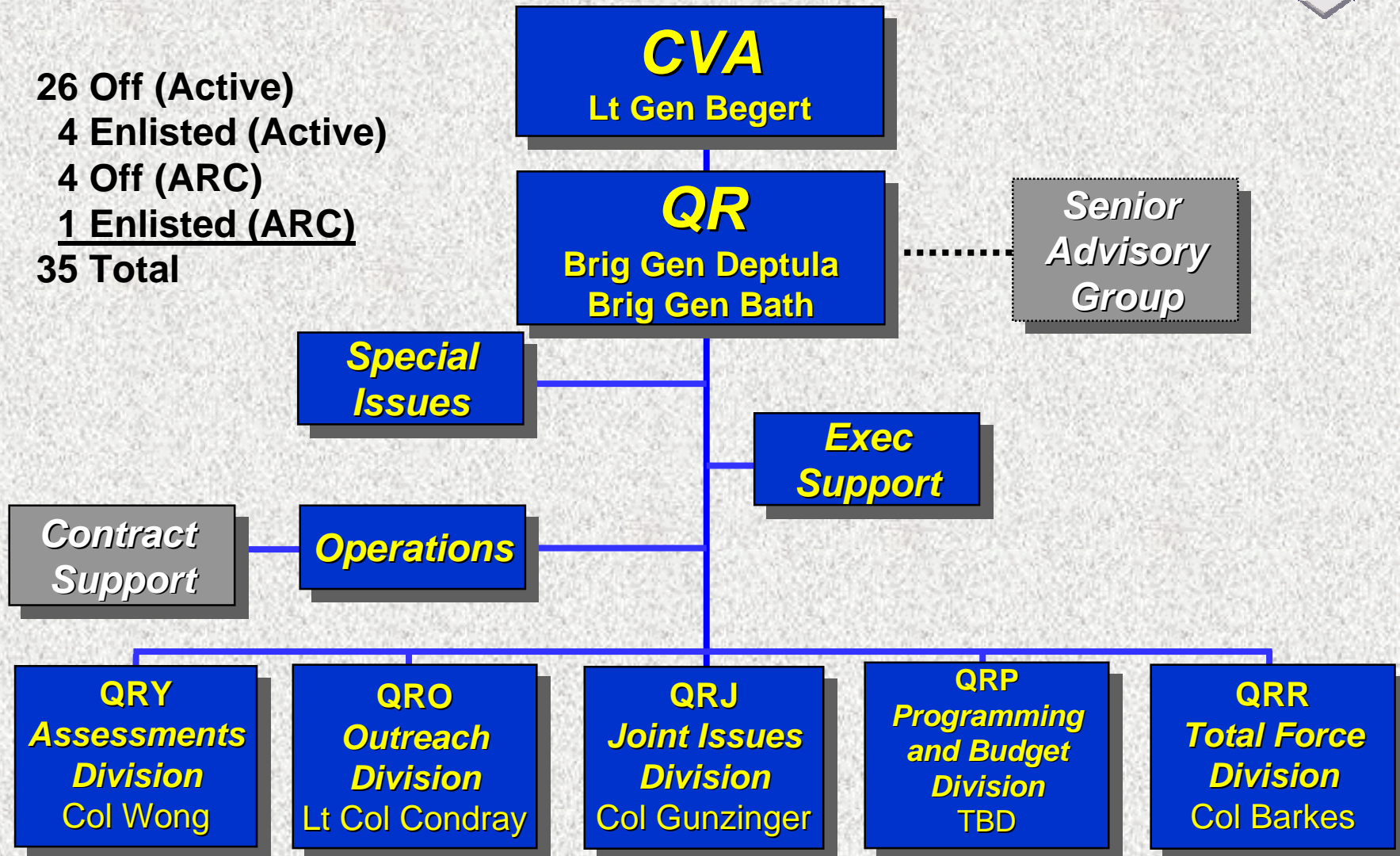
**“Sixx munths ago we couldn’t
spell QDR -- now we’re
expurts thanks to this book.”
AFSAA**



QDR Organizational Structure and Processes: AF/QR

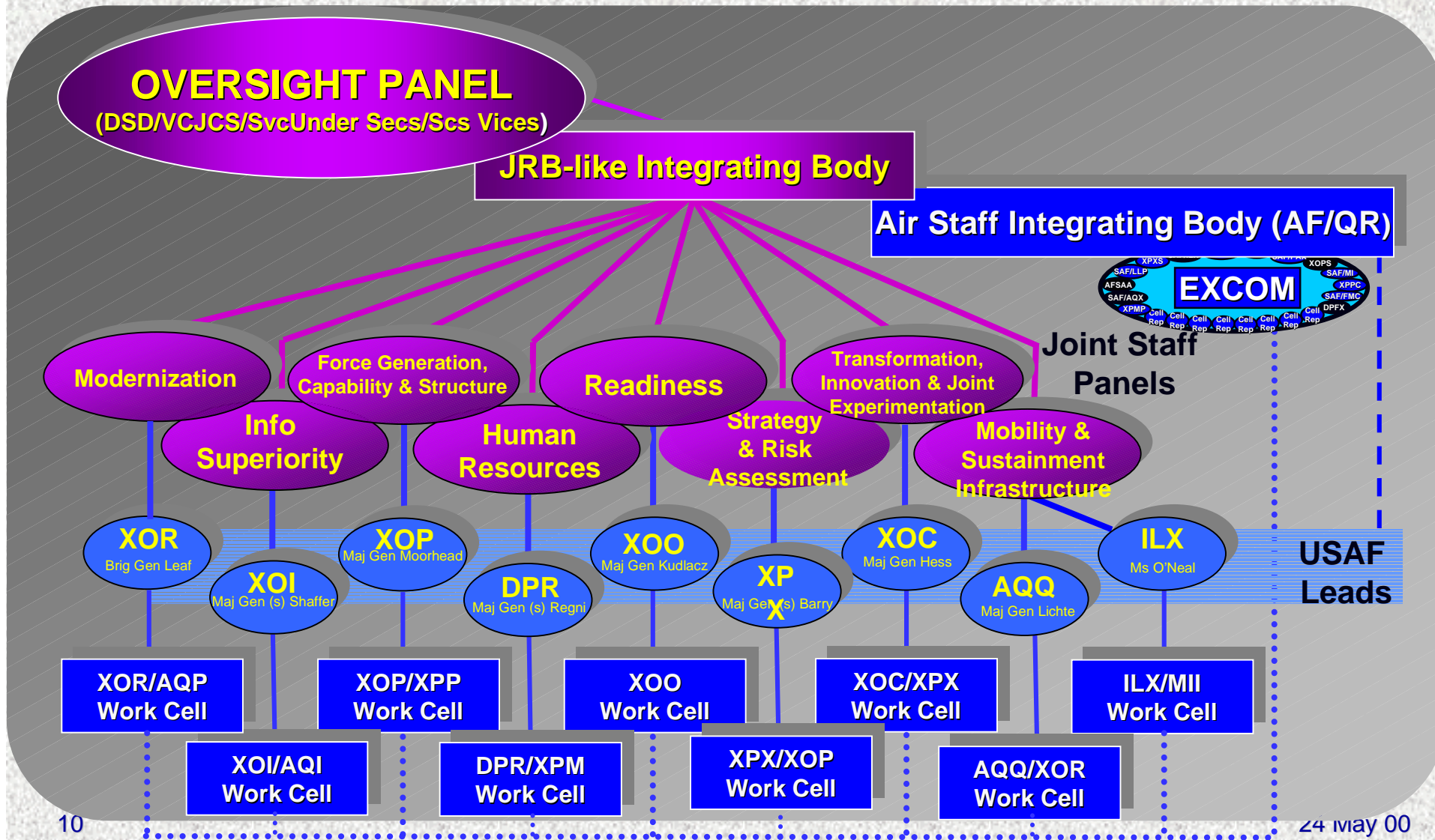


26 Off (Active)
4 Enlisted (Active)
4 Off (ARC)
1 Enlisted (ARC)
35 Total





JS / OSD Organization & CSAF-Approved Air Staff QDR Structure





AF QDR EXCOM

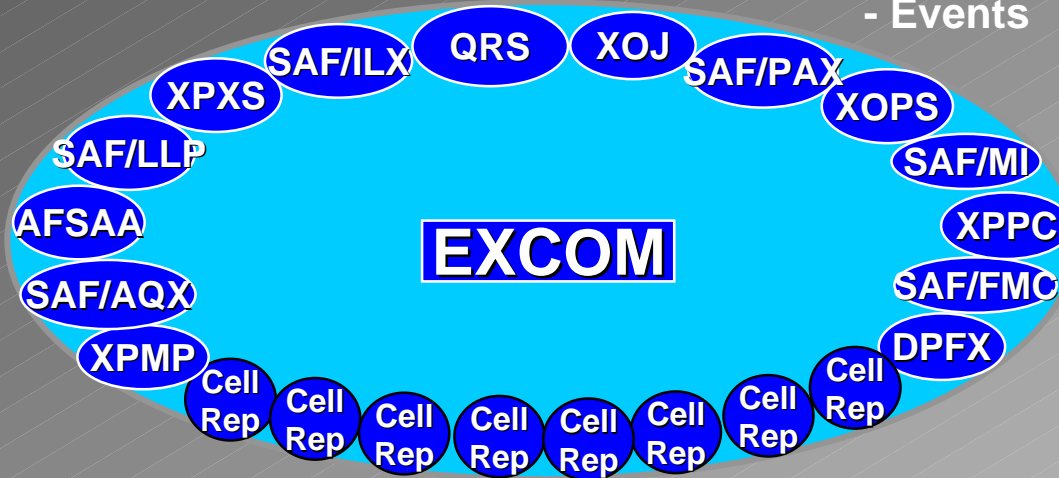


MAJCOMS

CC
CVA
QR

Shared Work Environment

- News
- Events
- Guidance
- Analyses
- Issue Forums



ANG/
AFRC

All Totally Connected Through
Corporate Process and IRSS/BHIS

AQQ/XOR
Work Cell

XOR/AQP
Work Cell

XOI/AQI
Work Cell

XPP/XOC
Work Cell

DPP/MIM
Work Cell

XOO
Work Cell

XPX/XOP
Work Cell

XOC/XPX
Work Cell

ILX/MII
Work Cell

Modernization

Information
Superiority

Force Gen.,
Capability,
& Structure

Human
Resources

Readiness

Strategy
and Risk
Assessment

Transformation
, innovation
& Joint Exp

Mobility &
Sustainment
Infrastructure



QDR Analytical Structure and ASG Membership



ASG

QRY/Col Wong
AFSAA/Col Hanley

FORCE STRUCTURE

MTW

AFSAA/Maj Fox

SSC

AF/QR/Maj Taylor

NEAR
PEER

ACC/XRY/Mr Callaway

MODERNIZATION

ATTACK
FORCE

AFSAA/Maj Marcotte

MISSILE
DEFENSE

AFSAA/Maj Hall

INFO
SUPERIORITY

AFSAA/Maj Hunter

AIR
MOBILITY

AFSAA/Mr McNeil

NUCLEAR
FORCES

XON/LtC Hudson

SPACE
SUPERIORITY

AFSAA/Maj Petrick

XPPL/Ms Friedrich

RECAPITALIZATION

XOOA/Lt Col Rollison

READINESS

IL/Maj Zahn

INFRASTRUCTURE

Cost Analyses

SAF/FMC LtC Lochbaum

Air Force Program Projection

AF/XPPL
Ms Friedrich

Forces

AF/XPPC LtC Mosteiro

Scenarios/Threat

AF/XPXQ Col Gunzinger

Ops Concepts

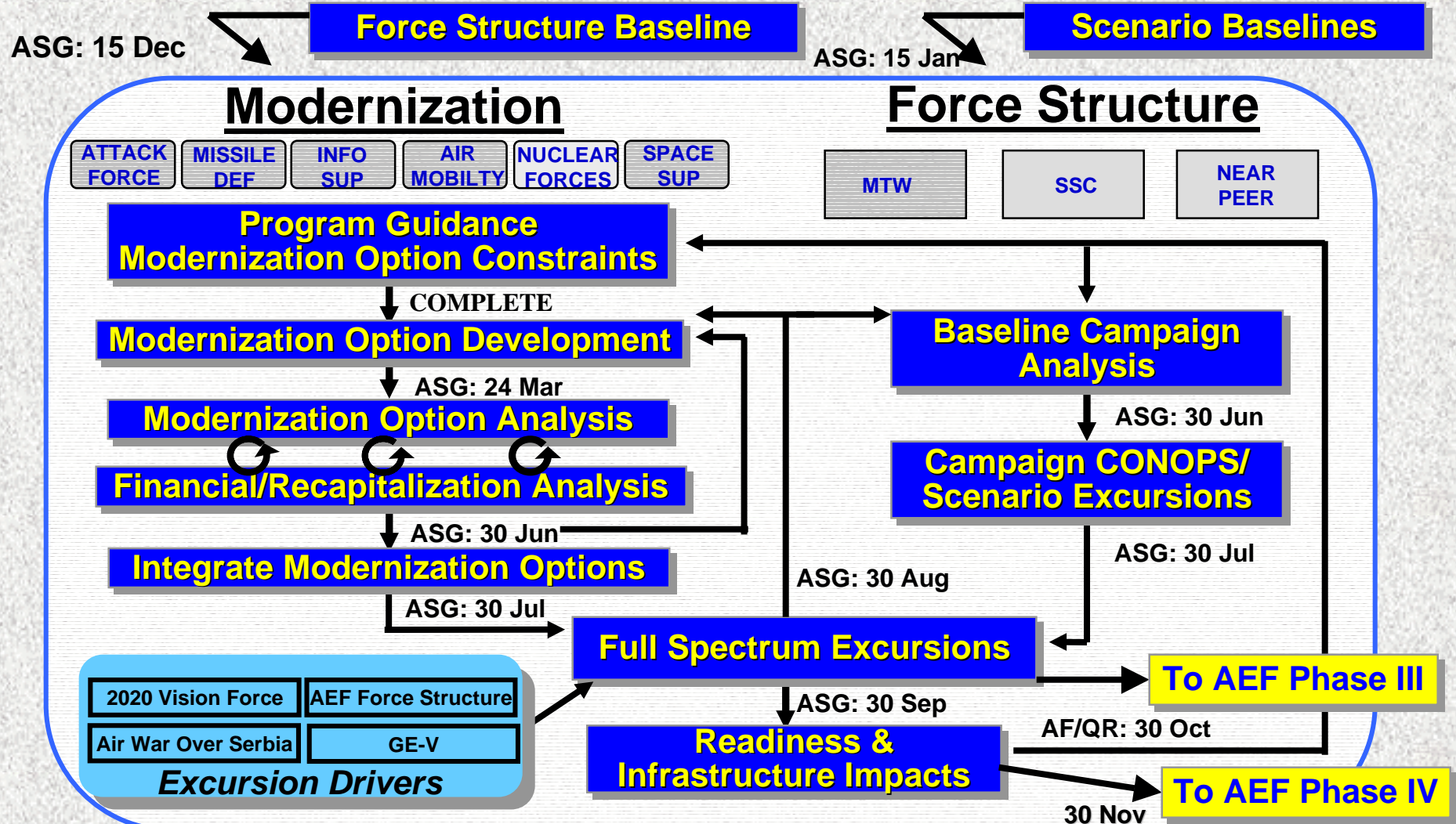
AF/XOP Col McRoberts

TPFDD/Mobility

AFSAA/SAAM Mr McNeil

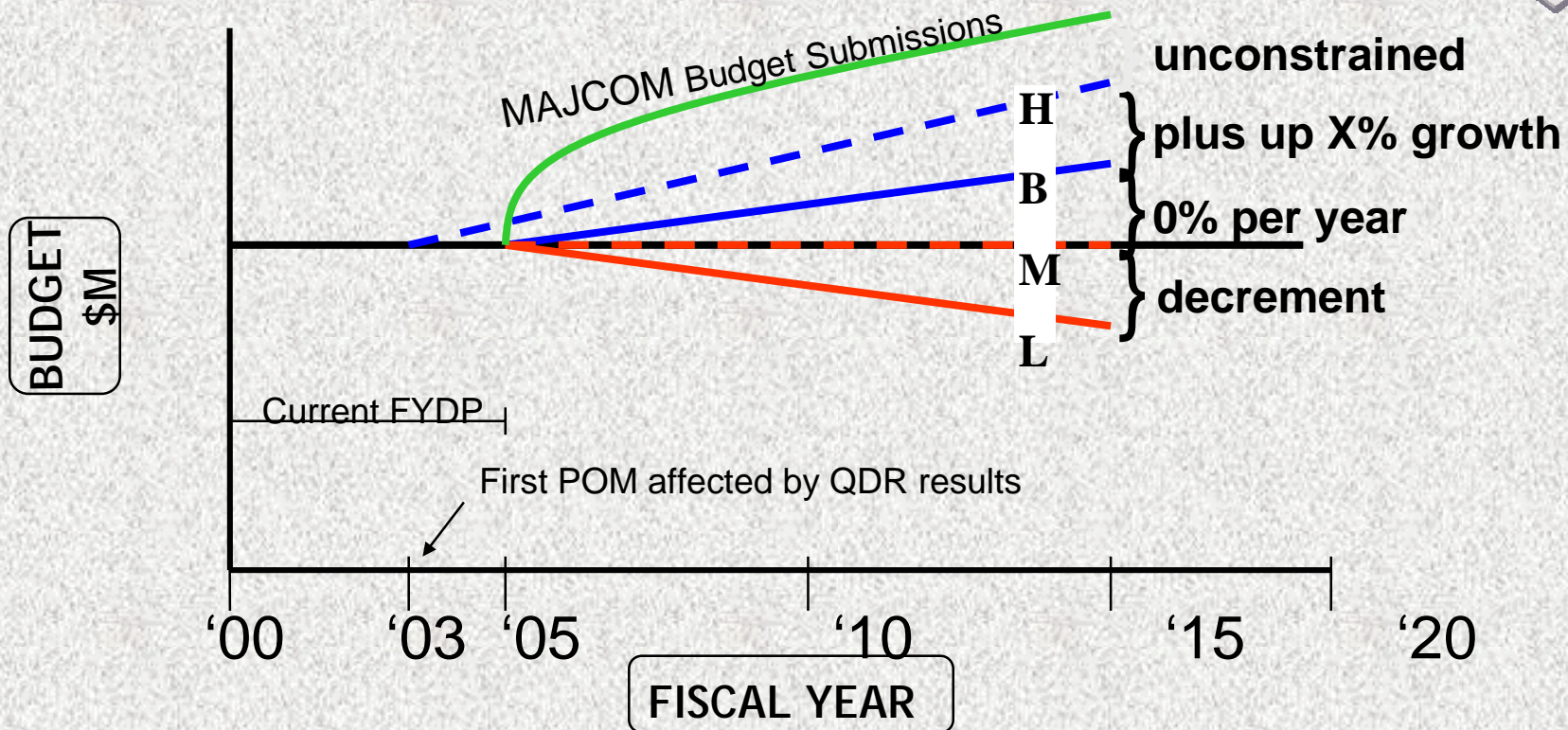


QDR Top Level Study Flow Process





Developing a Study Baseline and Fiscal Constraints



- MAJCOM Budget (unconstrained growth)
- - H = High: upper realm of possibility
- B = Baseline: assumes X% annual real growth)
- - M = Middle: represents 0% real growth)
- L = Low: minimum level for capability survival

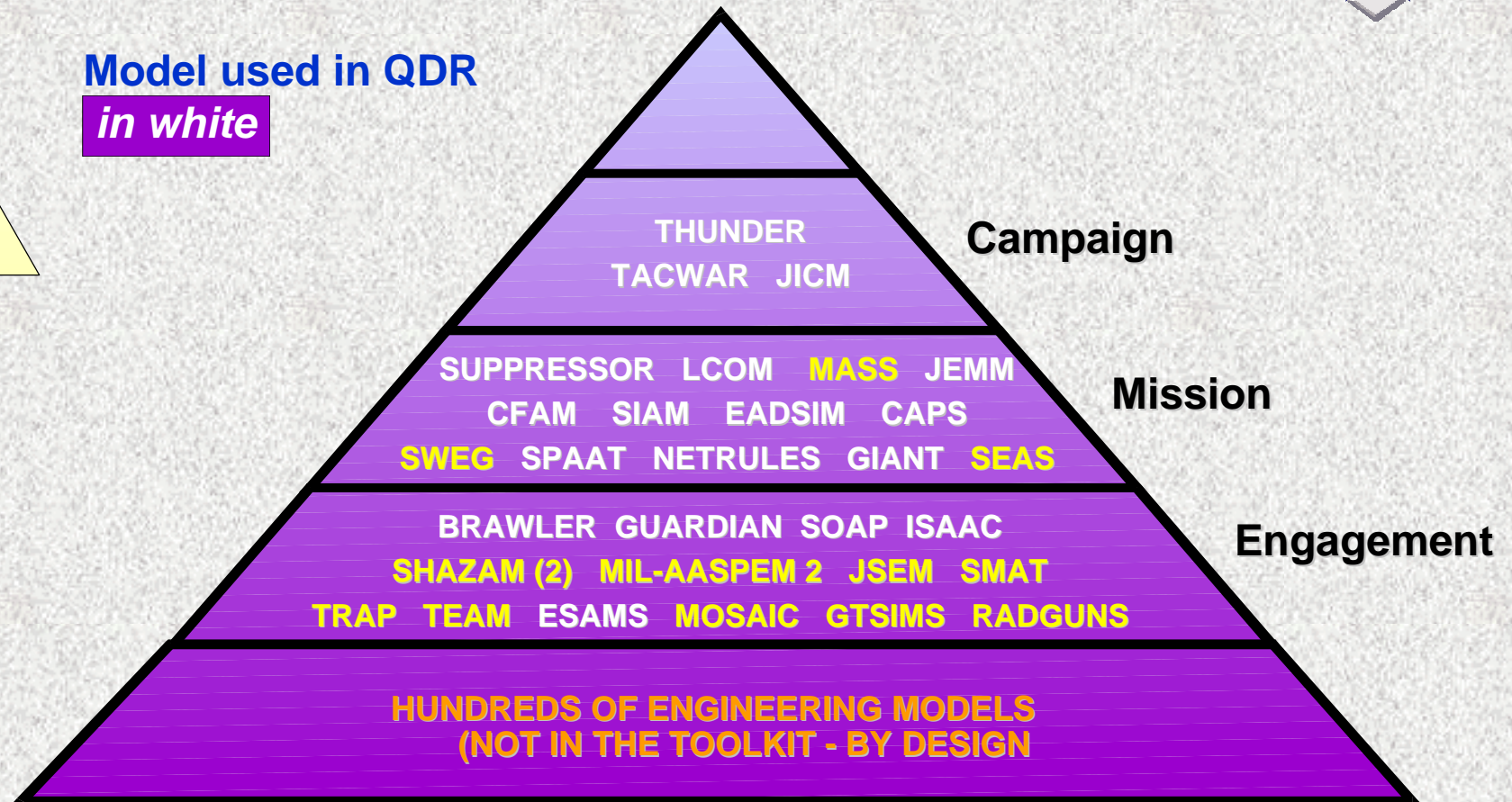


Air Force Models



Model used in QDR
in white

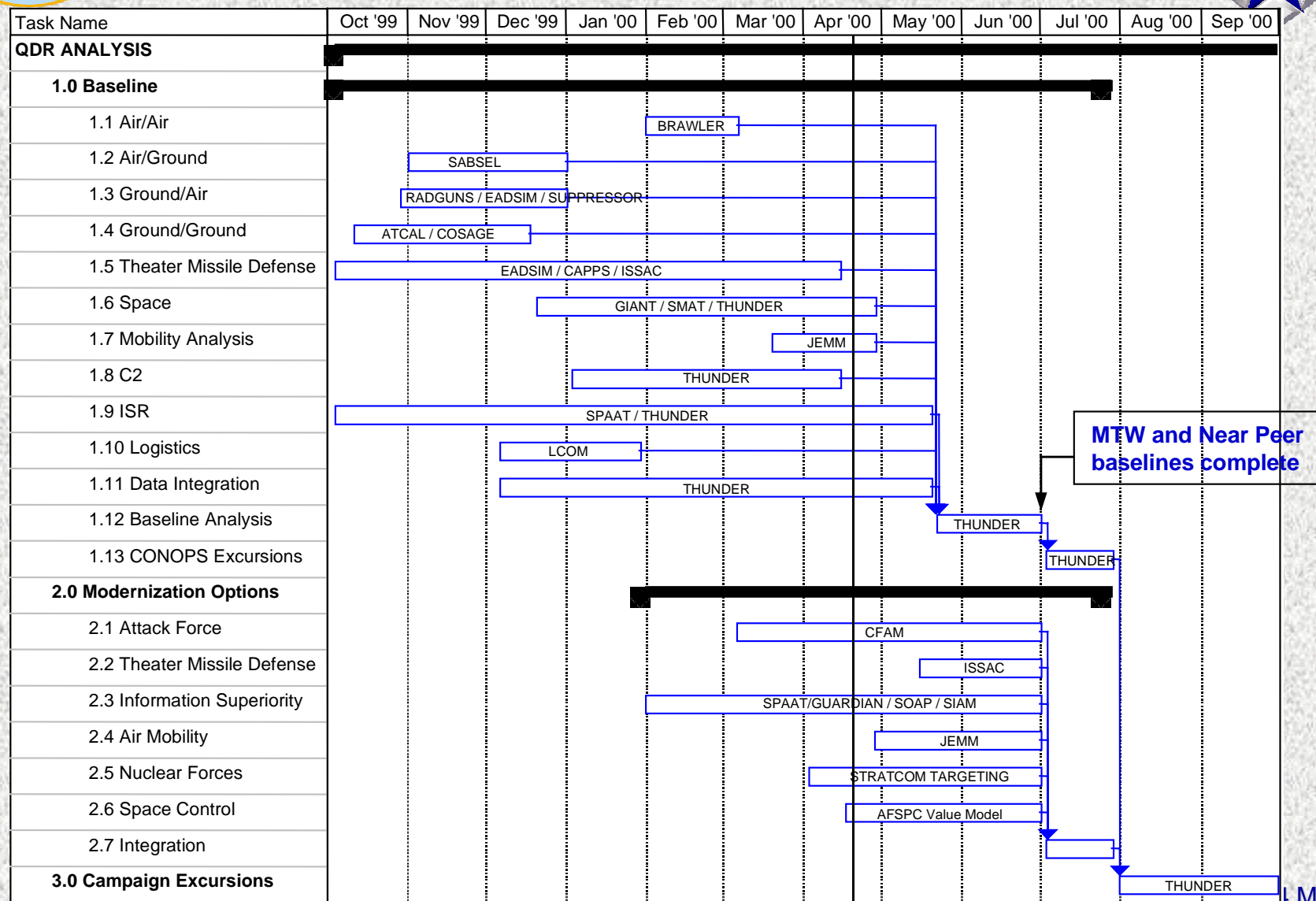
High Resolution => Aggregate



High resolution models *feed* aggregate models



QDR Analysis Model Flow





Blue Horizon Information System



- Executive and AO level information handling system for QDR related activity
 - On both Classified (non-NATO) & Unclassified networks
 - Unclassified System “rolled out” to all users 1 May
 - Anticipate Classified system “roll out” mid-May
 - “*dot mil*” and password protected (note: AF QDR contractors granted access through individual IP addresses)



Key JCA Enablers:

Understanding Limitations and Opportunities



- **Limited time is the enemy of collaborative analysis**
- **Essential elements of collaborative analysis**
 - **Senior leadership buy-in**
 - **Feedback loops**
 - **Open communication processes**
 - **Capture mechanisms**
- **Constrained resources, unconstrained thinking**
 - **Game theory applications**
 - **Fair division**
 - **Borrowing and leveling (see trade-space)**
 - **“Conditional” altruism**

Translating Theory into Practice



Challenges



- How to analyze and incorporate RMA
- Data requirements
- Increasing number and complexities of analyses



Data Issue

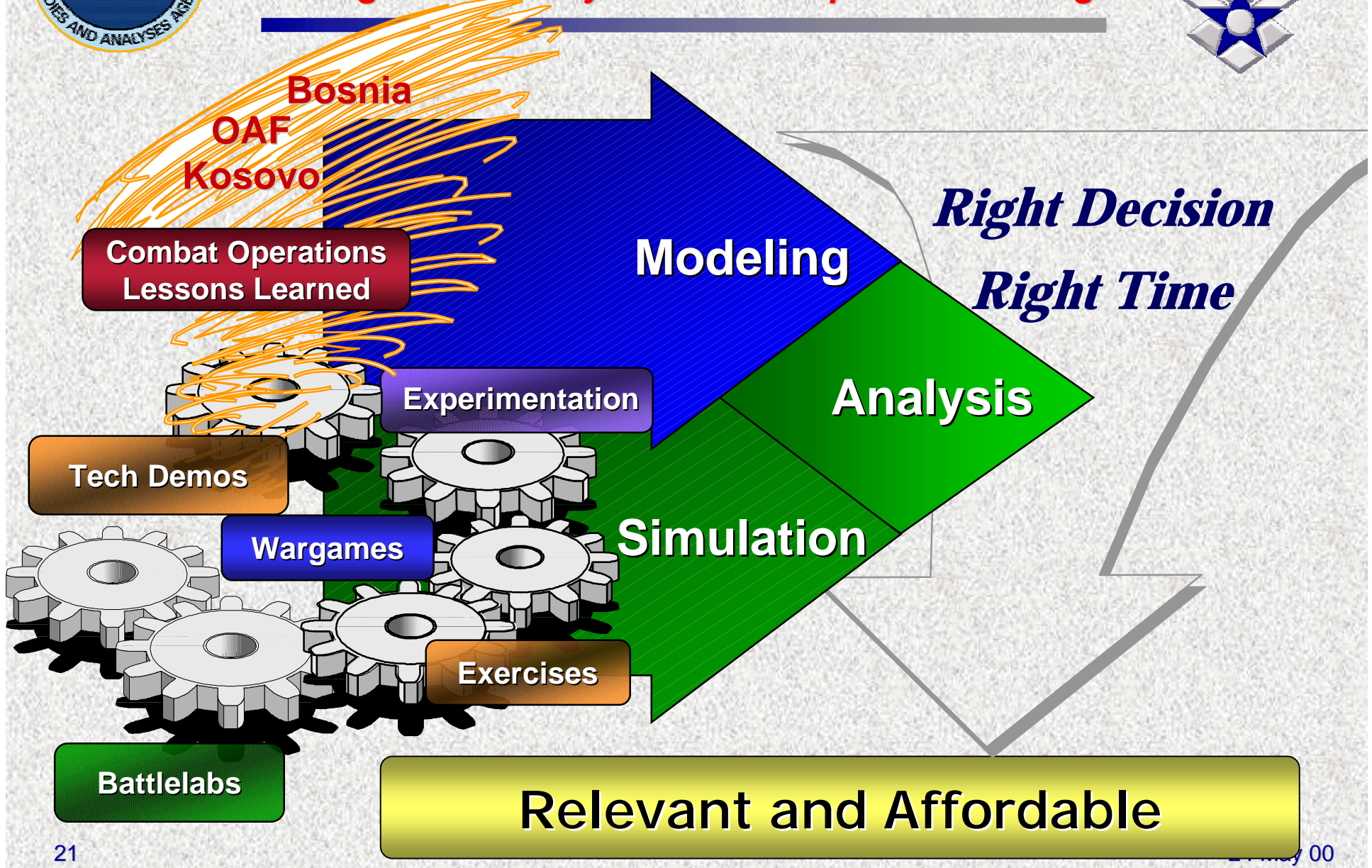


- **The DPG depicts 23 Illustrative and Long Range Planning Scenarios**
 - Major theaters of war (MTW), regional conflicts (RT), and small scale contingencies (SSC)
- **Many of these scenarios are not supported with appropriate data on Threat and Allied forces**
 - Data for the “bedrock” scenarios, MTW East & West, took six months to deliver for MRS-05
- **Data for upcoming defense reviews should be more readily available**



Key Enablers of the Vision:

Achieving Consistency Across Multiple Methodologies





Joint Collaborative Analytic Process



- Agreed upon scenarios and data
- Work together on baseline development
- Cooperation already in place
 - COSAGE and SABSEL data development
 - AF and Army working together on TMD for QDR
- OSD, Joint Staff and Services can run their own excursions from agreed upon baselines
- Establish process to incorporate insights from more detailed or unique models



The Way Forward



- **The scope of QDR issues and number of potential scenarios has the potential to overwhelm independent analytic efforts**
- **An inclusive, integrated teaming process with early and aggressive analytical preparation provides the opportunity for enlightened decision making concerning:**
 - **Simultaneously exploration of the strategy of engagement (SSCs) and major conflict (MTWs)**
 - **Balanced consideration of RMA and future challenges**
 - **Maximized understanding of asymmetric and non-intuitive challenges**